

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-13. (Cancelled)

14. (Previously Presented) A method for controlling a drying effect of an equipment layout used in making a coated web of paper or board, the equipment layout comprising at least one coater unit and a plurality of drying units, the method comprising:

applying a liquid-containing coating to a surface of a web in the at least one coater unit;

drying the web coated with the coating in the plurality of drying units by evaporating the liquid from the coated web until a moisture content of the web reaches a desired final moisture value;

compiling, for each drying unit wherein moisture is evaporated from the web, an evaporation rate submodel suited for computing an amount of liquid removed by the respective drying unit, wherein at least one specific evaporation rate submodel is linked into a composite evaporation rate model;

determining a needed overall evaporation effect to be performed by the equipment layout to achieve the desired final moisture value;

determining, by employing the composite evaporation rate model, a needed moisture evaporation effect for each drying unit of the equipment layout having an evaporation rate submodel linked into the composite rate model to achieve the needed overall evaporation effect; and

controlling the moisture evaporation rate for each drying unit of the equipment layout having an evaporation rate submodel linked into the composite rate model, the moisture evaporation rate being controlled in accordance with the determined needed moisture evaporation effect without measuring an actual amount of liquid removed by any individual drying unit of the equipment layout while such drying unit is drying the web.

15. (Previously Presented) The method according to claim 14, further comprising:
controlling an evaporation effect of one drying unit of the equipment layout having
an evaporation rate submodel linked into the composite rate model with the
composite evaporation rate model; and
setting the evaporation effect of every other drying unit of the equipment layout to
a fixed value.
16. (Cancelled)
17. (Previously Presented) The method according to claim 14, further comprising:
measuring a final moisture content of the web attained after drying the web with
the drying units of the equipment layout;
comparing the measured final moisture content with the desired final moisture
value; and
controlling the moisture evaporation rate for at least one drying unit of the
equipment layout with the composite evaporation rate model based upon the
comparison of the measured final moisture content with the desired final
moisture value.
18. (Canceled)
19. (Previously Presented) The method according to claim 14, further comprising:
measuring an initial moisture content of the web prior to entering a first of the at
least one coater unit;
determining the amount of liquid applied to the web in said applying step; and
controlling, using the composite evaporation rate model, the measured initial
moisture content and the determined amount of liquid applied to the web, an
evaporation rate of at least one controllable drying unit of the equipment
layout.

20. (Canceled)

21. (Previously Presented) The method according to claim 15, wherein a control signal to the controlled drying unit is changed in at least one of a stepwise manner and a superimposition of a pseudo-random binary signal (PRBS) on at least one set value.

22. (Previously Presented) The method according to claim 14, wherein an output value obtained from the evaporation rate submodel of a drying unit of the equipment layout is used as an input value in the evaporation rate submodel of a next successive drying unit of the equipment layout.

23. (Previously Presented) The method according to claim 17, wherein any needed change in the overall moisture evaporation effect is allocated among drying units for which the evaporation rate is controlled using the composite evaporation rate model proportionately in ratios determined by predetermined weighting factors.

24. (Previously Presented) The method according to claim 14, wherein an output value obtained from the evaporation rate submodel of a unit of the equipment layout is used as input value in the evaporation rate submodel of a preceding unit of the equipment layout.

25. (Previously Presented) The method according to claim 14, wherein the equipment layout comprises a plurality of subsystems, each subsystem comprising at least one coater unit and at least one dryer unit, and wherein an output value obtained from the evaporation rate submodel of a subsystem is used as input value in the evaporation rate submodel of a preceding subsystem.

26. (Previously Presented) The method according to claim 14, wherein the equipment layout comprises a plurality of subsystems, each subsystem comprising at least one coater unit and at least one dryer unit, and each subsystem having a

respective evaporation rate submodel, and wherein the subsystem evaporation rate submodels interact to produce the needed overall moisture effect of the equipment layout.

27. (New) A method for controlling the drying of a coated web of paper and/or board in a web apparatus comprised of at least one coater, at least one dryer, and at least one open draw after at least one dryer, the method comprising the step of:

using a composite drying effect model of the overall drying effect of the web apparatus to control the drying of the coated web, said composite drying effect model being comprised of a plurality of drying effect submodels linked together;

wherein each of the at least one coater, the at least one dryer, and the at least one open draw has a drying effect submodel of its drying effect on the coated web included in the plurality of drying effect submodels comprising the composite drying effect model;

wherein an output of each submodel comprises an evaporation rate of the component represented by said submodel, a moisture value of the web output from the component represented by said submodel, a change in web temperature within the component represented by said submodel, and/or a temperature of the web output by the component represented by said submodel; and

wherein an output of at least one submodel in the composite drying effect model comprises an input of a submodel following said at least one submodel in the composite drying effect model.

28. (New) The method according to claim 27, wherein the step of using a composite drying effect model of the overall drying effect of the web apparatus to control the drying of the coated web comprises the sub-step of:

complementing the composite drying effect model with measurement results from the web apparatus.

29. (New) The method according to claim 27, wherein submodels for individual components are combined together to form composite submodels.

30. (New) The method according to claim 29, wherein the web apparatus comprises at least two coating stations, each of the at least two coating stations comprising at least one coater and at least one dryer, and wherein submodels for individual components in each of the at least two coating stations of the web apparatus are combined together to form a composite submodel.

31. (New) The method according to claim 30, wherein the step of using a composite drying effect model of the overall drying effect of the web apparatus to control the drying of the coated web comprises the sub-step of:

using a feedback system with a coating station composite submodel to adjust set values of one or more of the at least one dryer in the coating station using moisture measurements from the output web of the coating section.

32. (New) The method according to claim 30, wherein the step of using a composite drying effect model of the overall drying effect of the web apparatus to control the drying of the coated web comprises the sub-step of:

using a feedforward system with a coating station composite submodel to manage dynamic transition states during web speed changes.

33. (New) The method according to claim 29, wherein an output of a composite submodel is fed back as input to a previous composite submodel in the chain forming the composite drying effect model.

34. (New) The method according to claim 27, further comprising the step of:

using the composite drying effect model to calculate an initial moisture content and/or intermediate moisture content of the web using a measurement of the final moisture content of the web.

35. (New) The method according to claim 27, further comprising the step of:
using the composite drying effect model to calculate a final moisture content of the web using a measurement of an initial moisture content and/or intermediate moisture content of the web.

36. (New) The method according to claim 27, wherein each submodel is of a drying effect on the coated web by a component comprising the web apparatus, and wherein the step of using a composite drying effect model of the overall drying effect of the web apparatus to control the drying of the coated web comprises the sub-step of:
taking into account, for each submodel, the contribution of characteristic control parameters of its corresponding component and the effect of process variables on the overall drying effect of the web apparatus.